

# Wage dispersion and wage mobility in the 1990s : the case of the Netherlands, Germany, France and the United Kingdom

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*European Low-Wage Employment Research Network*

## *Skills, Wage Dispersion and Wage Mobility in the 1990s*

*The case of the Netherlands, Germany, France and the United Kingdom*

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*Skills, Wage Dispersion and Wage Mobility in the 1990s: The Case of the Netherlands, Germany, France and the United Kingdom*

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# SKILLS, WAGE DISPERSION AND WAGE MOBILITY IN THE 1990s: THE CASE OF THE NETHERLANDS, GERMANY, FRANCE AND THE UNITED KINGDOM

Andries DE GRIP & Geralt NEKKERS

## 1 INTRODUCTION

During the 1990s some industrialised countries have shown different developments in wage dispersion than others. According to OECD data (OECD, 1996, pp. 61-62), in the United States and the United Kingdom both the wage difference between the highest wage decile and the median wage ( $D9/D5$ ) and the wage difference between the latter and the lowest wage decile ( $D5/D1$ ) have further increased, although there has been some slowdown compared to the 1980s. To the contrary, in most continental European countries wage dispersion has either remained unchanged (in France and the Netherlands for example) or slightly gone down (e.g. Germany) during the same time period.

Explaining diverging wage dispersion essentially belongs to the realm of general equilibrium macroeconomics. At least two lines of research may be distinguished<sup>1</sup>:

- Skill Biased Technological Change (cf. Berman et al., 1998; Machin and Van Reenen, 1998; Acemoglu, 2000): technological developments have increased the demand for high-skilled labour at the expense of low-skilled labour (the advance of the so-called “knowledge economy”). Standard neoclassical theory would predict that in such a situation *ceteris paribus* high-skilled wages would increase relative to low-skilled wages;
- relative demand and supply: changes in wage dispersion are thought to be brought about by changes in both the relative supply and demand of different skill groups (cf. Freeman and Katz, 1995; Blau and Kahn, 1996). Taking the SBTC-case as a starting point, the potential increase of high-skilled relative to low-skilled wages makes schooling for the low-skilled more attractive as long as the marginal benefit from higher wages is larger than the marginal cost of schooling. Thereby the supply of skills will also increase until a new equilibrium is established. Since schooling takes time, skill supply will generally lag behind the increased demand for higher skills. As a consequence wage differentials are bound to widen at least temporarily.

Valuable as it may be, analysing wage dispersion alone is not enough. It needs to be supplemented by an analysis of wage mobility in order to fully understand trends in inequality. If a widening wage dispersion is accompanied by an increase in wage mobility, then life-time wage dispersion will increase by less than what is observed cross-sectionally. Thus individual mobility through the wage distribution may offset the increase in the inequality of labour market outcomes that otherwise would be associated with comparatively high or rising levels of wage dispersion. At the same time developments in wage mobility have clear policy implications. If for example upward wage mobility would be the largest for individuals in the lower deciles of the wage distribution, specific policies directed at low-wage earners would not be as necessary as they would otherwise have been.

In the following we shall be considering trends in wage dispersion and wage mobility in the Netherlands, Germany, France and the UK during the 1990s for three different skill categories. The analysis will be descriptive, rather than explanatory, in character. *Wage dispersion* will be measured in terms of  $D9/D5$  and  $D5/D1$ , and skill-wage ratios, both for the whole economy and for four clusters of economic sectors (economic sectors for short). We wish to clarify whether wage dispersion by economic sector has changed in the same way as economy-wide. Furthermore, there is the question of whether changes in wage dispersion are caused by changes at the lower or rather at the upper end of the wage distribution, or both. *Wage mobility* will be measured in terms of nominal wage changes (we thus do not consider transition probabilities defined over the wage distribution). This indicates whether the relative position of the different skill groups has improved or worsened. Particular attention will be paid to the relationship between job changing and wage change and how this relates to movements within or between economic sectors.

This paper contains five parts. In Section 2 we give a short description of the datasets used for the empirical analyses. Section 3 presents some preliminary empirical results on low- and high-skilled employment and wages. In Sections 4 and 5 we consider wage dispersion between high-, medium- and low-skilled workers, and wage mobility respectively.

## 2 The data

For the empirical analyses in Section 3 we have made use of different national datasets for the years 1992, 1995 and 1998 (1997 for Germany): The Socio-Economic Panel (SEP) of Statistics Netherlands is a panel dataset covering approximately 13,000 individuals (including children and persons aged over 64) of which some 4,000 belong to the working population. The German Socio-Economic Panel

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1 A more or less complete review of the different explanations is given by Gottschalk and Smeeding (1997).

is basically the same kind of household panel and covers about 20,000 individuals. For France we use the Labour Force Survey (Enquête sur l'Emploi). Since the French panel has a three year rotation, in the section on earnings mobility the period over which wage changes are considered is two years instead of the three years for the other countries. The British data come from the British Household Panel Survey, which is an annual survey covering approximately 10,000 individuals. All datasets contain the necessary information on personal characteristics (age, gender, education etc.), wages and employment status.

We differentiate between low-, medium- and high-skilled workers, where the skill level is determined by the highest level of education an individual has attained. The three skill groups are related to the International Standard Classification of Education (ISCED) in the following way:

- low-skilled: Isced 0 – 2
- medium-skilled: Isced 3
- high-skilled: Isced 5 – 7 (6 – 7 for the Netherlands)

This measure may not be wholly appropriate to determine the actual skill level of workers (cf. Leuven et al., 1997). Within our datasets, however, it is the only sensible way in which skills can be measured.

The wage variable that we use is the net hourly wage rate. For some years the net monthly wage income is readily available, and we find net hourly wages by simply correcting for the number of hours worked per month. In other cases we only have information on gross wage income. Applying a tax correction and taking into account the number of hours worked, we find net hourly wages. Wage changes are defined as annualised changes in nominal wages.

Mobility is defined in terms of job or employer change (i.e. a change from one job or employer to another between two moments in time) depending on the information available from the datasets. We will take job change to be the generic term. We have considered mobility for both sub-periods 1992-1995 and 1995-1998 (1995-1997 for Germany; 1992-1994 and 1995-1997 for France). Within- and between-sector mobility are defined analogously.

### **3 Skill and wage structure of the working population**

In this section we will consider some first empirical results to set the stage. First we show the changes in the incidence of low- and high-skilled employment during the 1990s. The main reason for this is to see whether the alleged change in employment shares (where the employment of high-skilled workers increases at the expense of the low-skilled) is also apparent from our data. Second we consider changes in the incidence of low- and high-wage employment by skill category. It is expected that the



low-skilled are mainly low-wage earners, while the reverse is likely to hold for the high-skilled. Still it is important to describe how the incidence of low- and high-wage employment for the various skill categories has developed over time and to see whether there has been some improvement in the relative wage position of the low-skilled.

### **3.1 Incidence of low- and high-skilled employment**

Table 1 shows the skill composition of the Dutch, German, French and UK workforces in the 1990s. It is easily seen that in Germany a much larger share of the working population is medium-skilled than in the other three countries considered, mostly at the expense of the low-skilled. It seems that skills are more compressed in Germany, an observation which is also found in Freeman and Schettkat (2000) for example. The results for the UK are rather “a-typical” as well, but in a different way. Thus about half of the UK workforce is classified as being low-skilled, while for the other countries this percentage is roughly between 10% and 30%. At the same time the incidence of medium-skilled employment is much lower in the UK than it is in the Netherlands, Germany and France.

The developments over time in the incidence of the three skill categories are to some extent similar in the four countries. Thus, in the Netherlands, France and the UK low-skilled employment (in relative terms) has become much less frequent between 1992 and 1998. The opposite holds for medium- and high-skilled employment. Especially the employment share of high-skilled workers has risen over this period. For Germany the picture is quite a bit different though: The incidence of low-skilled employment has remained at the same level, while the employment share of the medium-skilled has decreased somewhat. As a consequence, in Germany, as in the other three countries, high-skilled employment has become more frequent. In general terms, we thus find a shift toward using high- and medium-skilled rather than low-skilled labour.

**Table 1**

**Incidence of skill categories (% of total) in the Netherlands, Germany, France and the UK, 1992, 1995 and 1998 (1997 for Germany)**

	1992	1995	1998
<i>The Netherlands</i>			
low-skilled	0.32	0.28	0.21
medium-skilled	0.46	0.47	0.49
high-skilled	0.22	0.25	0.30
<i>Germany</i>			
low-skilled	0.11	0.09	0.11
medium-skilled	0.72	0.69	0.68
high-skilled	0.17	0.21	0.21
<i>France</i>			
low-skilled	0.27	0.23	0.20
medium-skilled	0.50	0.52	0.52
high-skilled	0.23	0.25	0.28
<i>UK</i>			
low-skilled	0.55	0.48	0.44
medium-skilled	0.13	0.14	0.15
high-skilled	0.32	0.38	0.41

### 3.2 INCIDENCE OF LOW- AND HIGH-WAGE EMPLOYMENT

Rather intuitively, as Figures 1a-1d demonstrate, most low-skilled individuals are low-wage earners, while the opposite holds for the high-skilled. Generally, for all three years that we distinguish, the low-, medium- and high-skilled are concentrated in the lowest, middle and highest deciles of the wage distribution respectively, the only exception being the German low-skilled in 1992 and the UK low-skilled in all three years considered. More specifically, in all four countries between 40% and 55% of the low-skilled are in the bottom three deciles of the wage distribution. The high-skilled have the most marked concentration within the wage distribution, with 50-65% placed in the upper three deciles in each country. Still it is worthwhile noting that even high-skilled workers are sometimes low-wage earners. This proportion is roughly about 10%, but it is generally higher in Germany than in the other three countries. This indicates that the wage level of workers is not merely determined by their educational background.

The changes in distribution between 1992 and 1998 show that in the Netherlands the incidence of low-wage employment has increased for the low-skilled, especially between 1995 and 1998. The high-

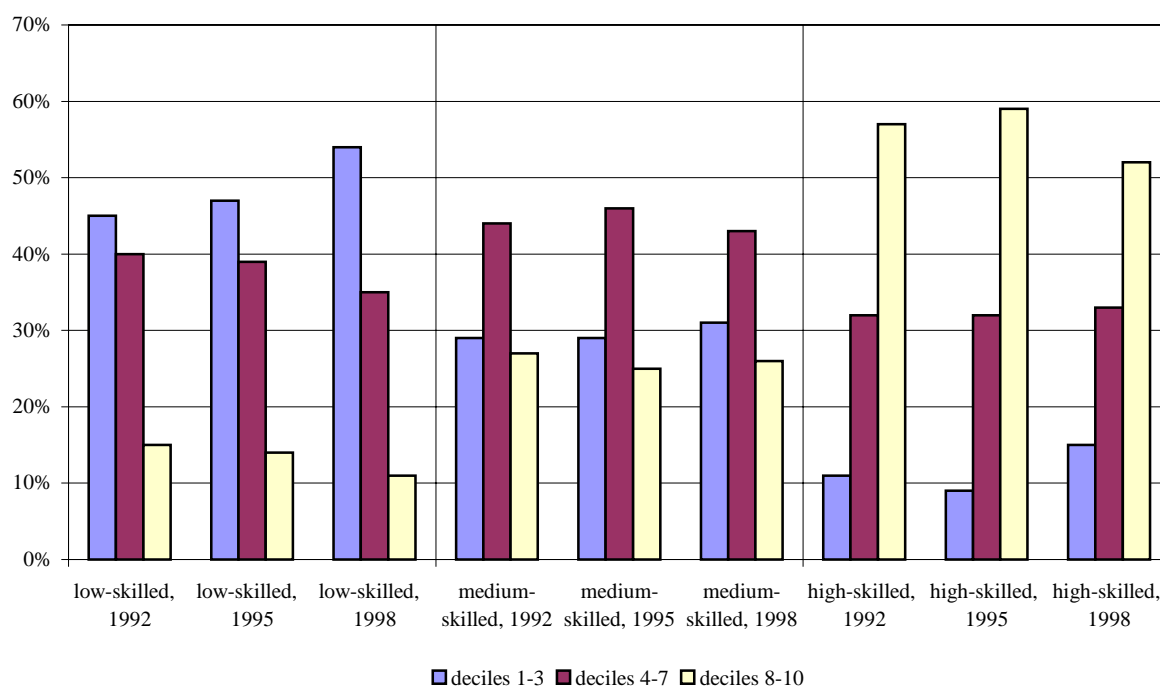
skilled have also seen their position worsen somewhat. Although the incidence of low-wage employment for the high-skilled has decreased slightly between 1992 and 1995, the opposite but stronger development between 1995 and 1998 has led to an increase in low-wage employment for the high-skilled of 4%-points and a decrease in high-wage employment of 5%-points since 1992. In Germany, just as in the Netherlands, low-skilled workers have seen their relative position worsen during the 1990s: Low-wage employment has risen from 43% in 1992 through 47% in 1995 to a considerable 55% in 1998. The relative wage position of the medium-skilled has improved somewhat, with a slight decrease in low-wage employment. The high-skilled have witnessed a relative decrease in their wage position between 1992 and 1995 and a relative increase between 1995 and 1997. In France, the relative wage positions of the low- and medium-skilled have remained roughly unchanged. To the contrary, the high-skilled have seen their position worsen quite considerably: Thus, between 1992 and 1998 low-wage employment for this group has increased from 9% to 14%, while at the same time high-wage employment has decreased by 8%-points. During the 1990s the UK low-skilled have not seen any dramatic changes in their relative wage position. Rather to the contrary, the medium- and high-skilled have witnessed a deterioration in their wage position. In both cases the incidence of low-wage employment has become more frequent during this period, while at the same time high-wage employment has become much less frequent.

*To summarise*, we have the following:

- In the Netherlands, France and the UK low-skilled employment (in relative terms) has become much less frequent during the 1990s. The opposite holds for medium- and high-skilled employment. Especially the employment share of high-skilled workers has risen over this period.
- In Germany the incidence of low-skilled employment has remained at the same level, while the employment share of the medium-skilled has decreased somewhat during the 1990s. As in the other three countries, high-skilled employment has become more frequent.
- In all four countries the incidence of low-wage employment has increased for the low-skilled during the 1990s, least so in the UK. The deterioration of the relative wage position of the low-skilled has been most prominent in the Netherlands and Germany.
- There has been rather little change in the relative wage position of the medium-skilled, except for the UK, where the medium-skilled have seen a considerable decrease in high-wage employment.
- In all four countries the relative position of the high-skilled has become worse, least so in Germany. This development has been most marked in France and the UK, with a considerable decrease in the incidence of high-wage employment.

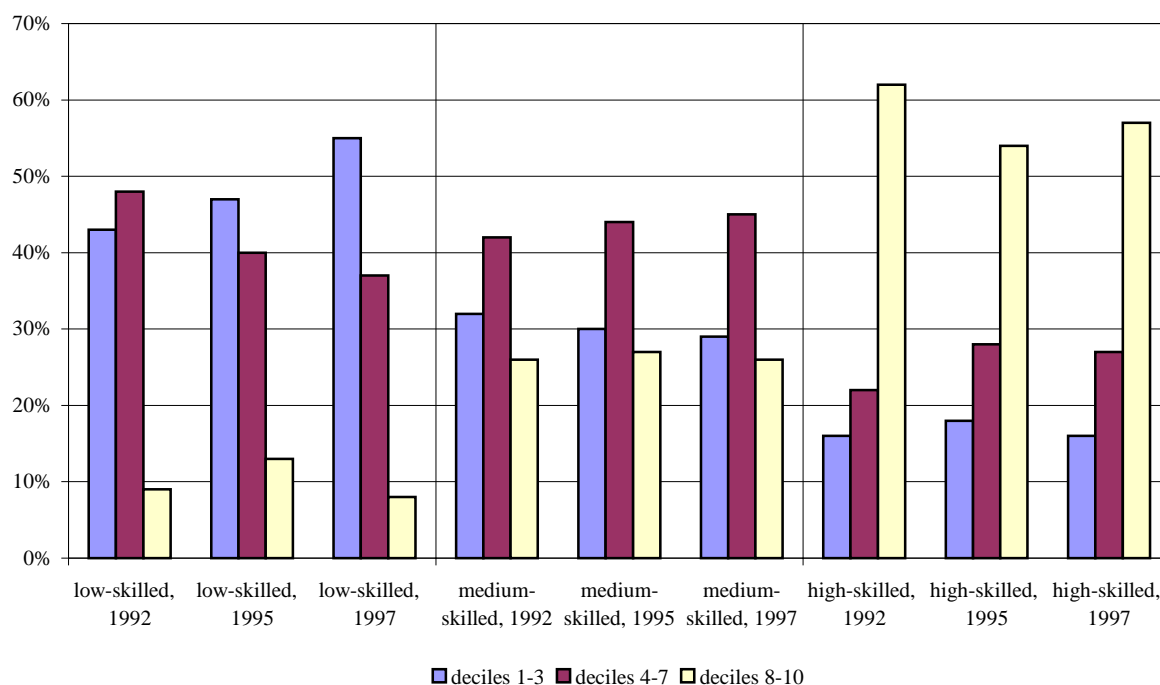
**Figure 1a**

**Percentage distribution of skill categories by wage deciles, the Netherlands, 1992, 1995 and 1998**



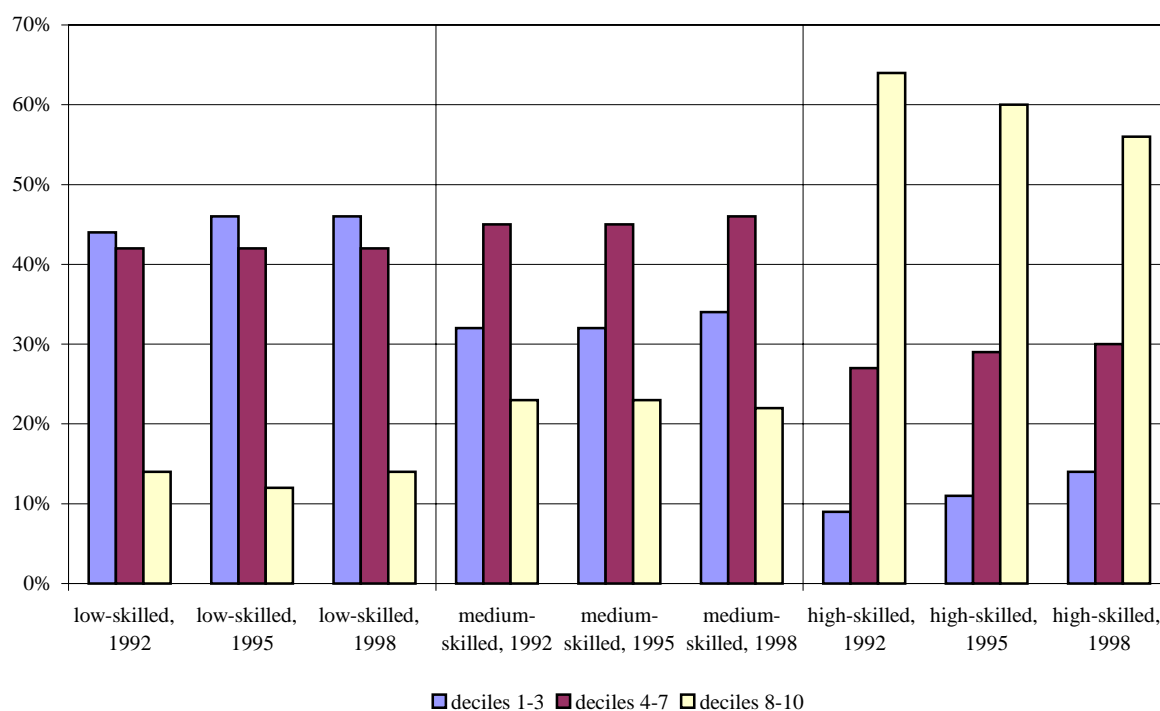
**Figure 1b**

**Percentage distribution of skill categories by wage deciles, Germany, 1992, 1995 and 1997**



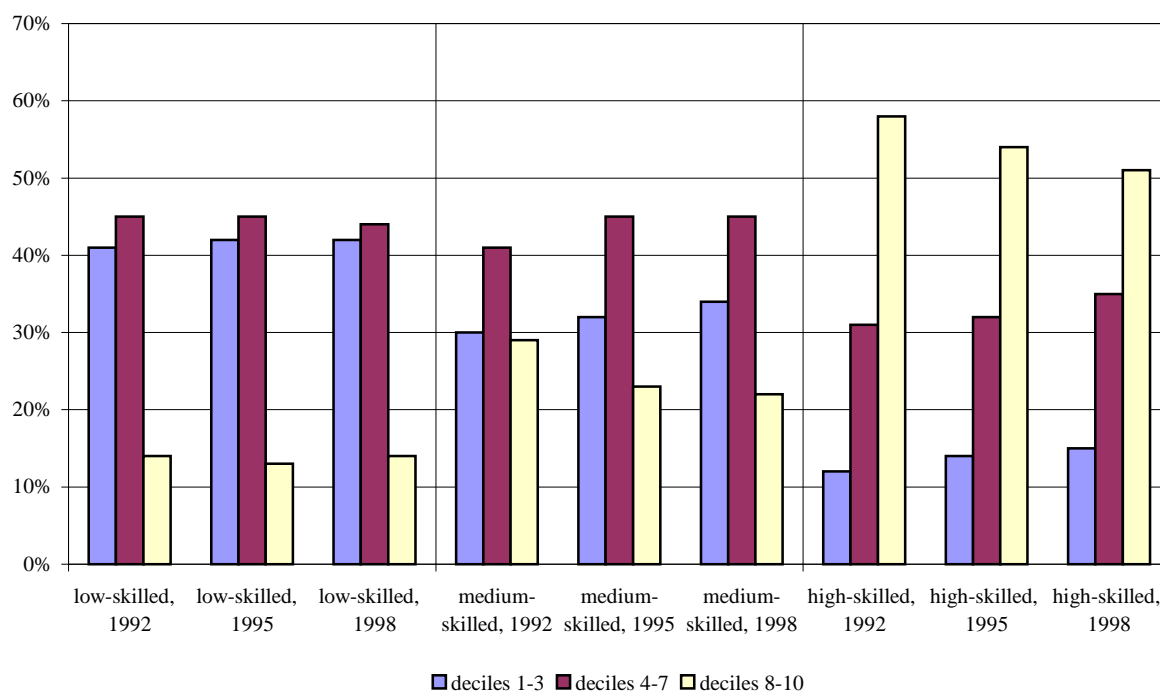
**Figure 1c**

**Percentage distribution of skill categories by wage deciles, France, 1992, 1995 and 1998**



**Figure 1d**

**Percentage distribution of skill categories by wage deciles, UK, 1992, 1995 and 1998**



## 4 WAGE DISPERSION

In this section we consider developments in wage dispersion during the 1990s. Only relative measures will be used. We differentiate between different skill categories and economic sectors to see if trends at lower levels are comparable to observed changes at the economy level. Additionally, we investigate whether changes in wage dispersion are caused by changes at the lower or rather at the upper end of the wage distribution.

### 4.1 Decile measures of wage dispersion

Looking at the total working population (category *total* in Table 2), it is found that inequality in the upper half of the wage distribution in the four countries can be ranked in a straightforward manner. The UK, France, Germany and the Netherlands rank first through fourth in all three years considered. As far as inequality in the lower half of the distribution is concerned, the picture is less consistent. In the UK it is quite a bit lower than upper half inequality and much more in line with the other countries. In France too  $D5/D1$  is consistently lower than  $D9/D5$ . In the Netherlands and Germany, the results are more mixed.

In a dynamic sense, between 1992 and 1998 inequality in the Netherlands has decreased substantially in the lower half of the wage distribution. On the other hand, in the upper half of the wage distribution, inequality has remained roughly unchanged, with a  $D9/D5$  ratio of around 1.5. As far as the upper half of the distribution is concerned, the situation is about the same for Germany, France and the UK, with hardly any change between 1992 and 1997/1998. In Germany, inequality in the lower half of the distribution has decreased considerably between 1992 and 1995, but an increase of about the same magnitude during the following two years has brought inequality back at its original 1992 level. The UK has witnessed the opposite development. In France, there has been hardly any change in  $D5/D1$  between 1992 and 1998.

In any single year, there seems to be a considerable amount of wage dispersion between economic sectors. In 1992 and 1995 dispersion in the Netherlands is largest in the agricultural sector, both in the upper and lower half of the wage distribution. In 1998, it is still largest in the lower half of the distribution, while it is smallest in the upper half. In Germany there is more variation in the sense that different economic sectors have the largest or smallest inequality in the three years considered: Thus  $D9/D5$  is largest in agriculture in 1992 and in non-commercial services in 1995 and 1997. In the same vein,  $D5/D1$  is largest in non-commercial services in 1992 and in commercial services in 1995 and 1997. In France, both  $D9/D5$  and  $D5/D1$  are largest in non-commercial services and smallest in

agriculture in all three years considered. Finally, in the UK, inequality is smallest in agriculture just as in France, while inequality is largest in either commercial or non-commercial services.

*To summarise*, we have the following:

- During the 1990s inequality (in decile terms) in the Netherlands has decreased substantially in the lower half of the wage distribution. On the other hand, in the upper half of the wage distribution, inequality has remained roughly unchanged.
- As far as the upper half of the distribution is concerned, the situation is about the same for Germany, France and the UK, with hardly any change during the 1990s. In the lower half of the distribution there have been diverging developments.
- There seems to be a considerable amount of wage dispersion between economic sectors. In the Netherlands, inequality is generally largest in agriculture. To the contrary, in France and the UK inequality is lowest in agriculture. In these two countries dispersion is generally largest in either commercial or non-commercial services. In Germany the picture is more diverse.

**Table 2**

**Relative wage dispersion by economic sector in the Netherlands, Germany, France and the UK, 1992, 1995 and 1998 (1997 for Germany)**

	1992		1995		1998	
	D9/D5	D5/D1	D9/D5	D5/D1	D9/D5	D5/D1
<i>The Netherlands</i>						
agriculture	1.63	3.68	1.63	1.97	1.31	1.75
manufacturing	1.46	1.68	1.46	1.41	1.51	1.44
commercial services	1.48	2.01	1.54	1.51	1.54	1.63
non-comm. services	1.50	1.68	1.45	1.44	1.44	1.43
<b>total</b>	<b>1.49</b>	<b>1.97</b>	<b>1.53</b>	<b>1.48</b>	<b>1.52</b>	<b>1.51</b>
<i>Germany</i>						
agriculture	2.23	1.51	1.55	1.51	1.31	1.57
manufacturing	1.54	1.64	1.62	1.53	1.64	1.84
commercial services	1.77	1.84	1.69	1.65	1.61	2.11
non-comm. services	1.90	1.85	1.85	1.56	1.88	1.72
<b>total</b>	<b>1.68</b>	<b>1.84</b>	<b>1.71</b>	<b>1.64</b>	<b>1.70</b>	<b>1.86</b>
<i>France</i>						
agriculture	1.59	1.35	1.48	1.35	1.51	1.27
manufacturing	1.78	1.43	1.76	1.47	1.72	1.45
commercial services	1.77	1.47	1.86	1.49	1.85	1.44
non-comm. services	2.18	1.61	1.95	1.60	1.91	1.57
<b>total</b>	<b>1.87</b>	<b>1.49</b>	<b>1.87</b>	<b>1.52</b>	<b>1.84</b>	<b>1.50</b>

<i>UK</i>						
agriculture	1.74	1.36	1.43	1.66	1.82	1.66
manufacturing	1.88	1.80	1.83	1.76	1.94	1.78
commercial services	2.33	1.83	2.42	2.09	2.42	1.80
non-comm. services	2.11	2.01	2.01	2.09	1.98	1.89
<b>total</b>	<b>2.17</b>	<b>1.88</b>	<b>2.14</b>	<b>1.91</b>	<b>2.15</b>	<b>1.84</b>

N.B. Due to a relatively small number of observations, the results for agriculture in Tables 2 to 4 should be treated with some caution. For that reason, in Table 4 the results pertaining to the Dutch agricultural sector have been excluded.

## 4.2 SKILL-WAGE RATIOS

Notwithstanding their frequent use, measures such as D5/D1 and D9/D5 have the disadvantage that the observed differences may be due to “skill composition effects”. If for example the average skill level of individuals at the 9<sup>th</sup> decile of the wage distribution were to increase, the accompanying higher wage would show up as an increase in D9/D5 (assuming that the average skill level at D5 remains unchanged). The increase in D9/D5 is spurious in the sense that the higher wage merely reflects the return to the increased skill level at the 9<sup>th</sup> decile.

This effect may be attenuated by considering changes in skill-wage ratios instead. The average “quality” of the different skill categories is more or less stable across years, so the observed wage changes better reflect changes in inequality. Table 3 shows the results. Two things are to be noted: First, the figures in Table 3 are substantially lower than in Table 2 which means that the skill premia of high- and medium-skilled workers are smaller than more general data on wage inequality indicate. Second, in some cases the developments over time differ considerably between the four countries. Between 1992 and 1997/8, in the Netherlands, Germany and France the wage differentials between high- and medium-skilled workers have gone down. At the same time, wage differentials between the medium- and low-skilled have gone up. This consistency is somewhat blurred when the two sub-periods are considered separately. In the UK, the picture is much clearer and contrasts sharply with what was found for the other three countries.

In the Netherlands, as far as the different economic sectors are concerned, in agriculture dispersion in the lower half of the skill distribution is much more in line with the other sectors than was the case in Table 2, especially for 1992. With the exception of agriculture (entire skill distribution) and non-commercial services (lower half of the skill distribution), the changes in dispersion between 1992 and 1998 by economic sector are comparable to the economy-wide trends. In Germany skill-wage ratios are generally smallest in agriculture and largest in non-commercial services. Note that in agriculture we find some rather exceptional results: Thus wages of the medium-skilled seem to be somewhat larger than those of the high-skilled in all three years considered. In a dynamic sense, in the lower half



of the skill-wage distribution, the trends for the different economic sectors are comparable to the economy-wide trends, with the exception of agriculture where the trends are exactly opposite. The same roughly holds for the upper half of the distribution. In France, as in Table 2, skill-wage ratios are generally smallest in agriculture, both in the lower and upper half of the skill-wage distribution, while they are largest in non-commercial services. The situation is exactly opposite in 1998 for the lower half of the distribution. As in Germany, the trends for the different economic sectors are comparable to the economy-wide trends, the change in  $w_m/w_l$  in the agricultural sector between 1995 and 1998 being the most important exception. In the UK as well, in most cases skill-wage ratios are smallest in agriculture. Furthermore,  $w_m/w_l$  is largest in manufacturing, while  $w_h/w_m$  is largest in either commercial or non-commercial services. Again, the trends for the different economic sectors are as economy-wide, with the exception of agriculture where developments have to some extent been opposite.

*To summarise*, we have the following:

- In the Netherlands the wage differentials between medium- and low-skilled workers have gone down between 1992 and 1995, while the reverse development holds for the period 1995-1998. To the contrary, the skill premium for the high-skilled increased between 1992 and 1995, whereas it decreased in the following three years.
- In Germany the wage differentials between medium- and low-skilled workers have increased quite a bit between 1995 and 1997. The wage premium of the high-skilled has decreased between 1992 and 1995, and increased thereafter.
- In France, the high-skilled have seen their relative position worsen during the 1990s.
- Contrary to France, in the UK the high-skilled have seen their relative position improve during the 1990s.
- In the Netherlands, with the exception of agriculture (entire skill distribution) and non-commercial services (lower half of the skill distribution), the changes in dispersion by economic sector are comparable to the economy-wide trends.
- In Germany, in the lower half of the skill-wage distribution, the trends for the different economic sectors are comparable to the economy-wide trends, with the exception of agriculture where the trends are exactly opposite. The same roughly holds for the upper half of the distribution.

- In France, the trends for the different economic sectors are comparable to the economy-wide trends, the change in  $w_m/w_l$  in the agricultural sector between 1995 and 1998 being the most important exception.
- In the UK as well, the trends for the different economic sectors are comparable to the economy-wide trends, with the exception of agriculture.

**Table 3**

**Skill-wage ratios by economic sector in the Netherlands, Germany, France and the UK, 1992, 1995 and 1998 (1997 for Germany)**

	1992		1995		1998	
	$w_m/w_l$	$w_h/w_m$	$w_m/w_l$	$w_h/w_m$	$w_m/w_l$	$w_h/w_m$
<i>The Netherlands</i>						
agriculture	1.16	1.35	1.35	1.22	1.32	1.04
manufacturing	1.22	1.17	1.13	1.25	1.26	1.15
comm. services	1.19	1.24	1.12	1.30	1.17	1.23
non-comm. services	1.11	1.26	1.18	1.26	1.18	1.22
<b>total</b>	<b>1.18</b>	<b>1.25</b>	<b>1.16</b>	<b>1.27</b>	<b>1.22</b>	<b>1.20</b>
<i>Germany</i>						
agriculture	0.96	0.99	1.39	0.99	1.15	0.86
manufacturing	1.22	1.25	1.19	1.22	1.42	1.28
comm. services	1.06	1.53	1.16	1.32	1.27	1.31
non-comm. services	1.22	1.62	1.16	1.49	1.33	1.52
<b>total</b>	<b>1.18</b>	<b>1.46</b>	<b>1.18</b>	<b>1.34</b>	<b>1.36</b>	<b>1.40</b>
<i>France</i>						
agriculture	0.52	1.40	1.06	1.40	1.50	-
manufacturing	1.08	1.57	1.12	1.51	1.09	1.43
comm. services	1.05	1.47	1.18	1.39	1.18	1.37
non-comm. services	1.16	1.77	1.26	1.58	1.02	1.65
<b>total</b>	<b>1.06</b>	<b>1.62</b>	<b>1.16</b>	<b>1.55</b>	<b>1.11</b>	<b>1.50</b>
<i>UK</i>						
agriculture	1.13	1.07	0.90	1.21	1.55	0.80
manufacturing	1.35	1.22	1.22	1.36	1.19	1.38
commercial services	1.19	1.51	1.20	1.42	1.13	1.52
non-comm. services	1.29	1.46	1.19	1.50	1.11	1.55
<b>total</b>	<b>1.26</b>	<b>1.42</b>	<b>1.20</b>	<b>1.44</b>	<b>1.15</b>	<b>1.47</b>

*N.B.*  $w_l$ ,  $w_m$  and  $w_h$  denote low-skilled, medium-skilled and high-skilled wages respectively

## 5 WAGE MOBILITY

In this section we consider developments in wage mobility during the 1990s. Nominal wage changes between 1992-1995 and 1995-1998 (1995-1997 for Germany; 1992-1994 and 1995-1997 for France) are presented, for different skill and mobility categories, and four economic sectors. Considering

nominal wage changes for different skill categories enables one to see whether the relative position of the different skill groups has improved or worsened. Attention will also be paid to the relationship between job/employer change and wage change and how this relates to movements within or between economic sectors.

### **5.1 Wage mobility: Does the economic sector make a difference?**

Unfortunately Table 3 does not indicate how changes in relative wages come about. Thus an increase in  $w_m/w_l$  for example may be due to an increase in  $w_m$  and/or a decrease in  $w_l$ . This deficiency is remedied in Table 4, which shows for each skill level separately how nominal wages have changed during the 1990s.

In the Netherlands for the total working population (category *total* in the table) nominal wages have increased during both sub-periods considered. This holds for all skill categories.<sup>2</sup> Between 1992 and 1995 the increase has been strongest for the low-skilled, while during the following three years it has been strongest for the medium-skilled. In both sub-periods the increase has been relatively weak for the high-skilled. The wage changes differentiated by economic sector are sometimes quite substantial, although the general picture that wages have increased during the 1990s is present here as well, the only exception being manufacturing, where high-skilled wages have decreased by 2% between 1992 and 1995. As a matter of fact, manufacturing has performed rather poorly during that time period for all three skill categories. This situation has changed rather drastically during the following three years for the medium- and high-skilled. Between 1992 and 1995 the wage increases in commercial services have been particularly strong for the low- and high-skilled, while the same is true for the medium-skilled in non-commercial services. Between 1995 and 1998, as far as commercial and non-commercial services are concerned, the wage development is more evenly distributed.

Germany has to some extent experienced developments similar to the Netherlands. Thus nominal wages (category *total*) have increased for all skill categories during both sub-periods. Still the wage increase has been more pronounced in Germany between 1992 and 1995, while it has been more moderate between 1995 and 1997. As in the Netherlands, between 1992 and 1995 the increase has been strongest for the low-skilled. In Germany, between 1995 and 1997 this is still true. As far as the different economic sectors are concerned, between 1992 and 1995 wages have increased considerably for the medium-skilled working in agriculture. It is to be noted though that during the following two years, these individuals have seen their wages erode. As a matter of fact, this holds for all skill categories. The other economic sectors follow the general trend that wage increases have been more

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2 Note that this need not be true at the individual level, since we are considering average wage changes for the respective total groups only. In fact, during the 1990s many individuals have faced decreasing nominal wages.

moderate between 1995 and 1997 than between 1992 and 1995, the only exception being low-skilled wages in manufacturing that have actually increased stronger during the second sub-period.

France too has witnessed wage increases during the 1990s for all skill categories. Just as in Germany, between 1992 and 1994 the increase has generally been larger than between 1995 and 1997, in France most clearly so for the medium-skilled. During the first sub-period the medium-skilled have fared best, while the same is true for the high-skilled during the second sub-period. As far as the economic sectors are concerned, between 1992 and 1994 the average nominal wage increase has by far been largest for individuals working in commercial services. To the contrary, there has been hardly any improvement for the medium-skilled working in agriculture. As a matter of fact, wages have increased only moderately in agriculture between 1992 and 1994 for all skill categories. Between 1995 and 1997 there has been much less variation in sectoral wage changes. Commercial services are no longer dominant in terms of wage increases, except for the medium-skilled. The high-skilled working in agriculture have seen the largest wage increase during this period.

Just as in the other three countries, in the UK wages have increased for all skill categories during both sub-periods. Between 1992 and 1995 the increase has been strongest for the low-skilled. As we saw above, this was also the case in the Netherlands and Germany. During the second sub-period, the wage increase has been the largest for the medium-skilled by just a small margin. As a matter of fact, looking at the three skill categories, there is rather little variation in the wage changes observed during the 1990s. This is also true for the different economic sectors, i.e. the sectoral trends do not diverge that much from the economy-wide trends, at least less so than in the other three countries. Furthermore, there is no sector that consistently ranks first in terms of wage increases for the different skill categories and sub-periods. The results for agriculture seem somewhat out of line, but it should be borne in mind that these results may be biased because of small sample sizes.

*To summarise*, nominal wages have increased during the 1990s for all skill categories in all countries considered. In Germany and France, the wage increase has generally been largest during the first, while in the Netherlands it has been largest during the second sub-period. In the UK, there does not seem to be any clear time pattern. The differences between economic sectors seem to be sometimes quite substantial. Thus, manufacturing has performed rather poorly in the Netherlands between 1992 and 1995, while the same holds for agriculture in Germany during the second sub-period. In both cases this is true for all three skill categories. In France, between 1992 and 1994 the wage increase in commercial services has been very considerable. In the UK, manufacturing seems to have performed relatively well, especially during the second sub-period.

**Table 4**

**Annual percentage change in average low-, medium-, and high-skilled nominal wages by economic sector in the Netherlands (1992-1995 and 1995-1998), Germany (1992-1995 and 1995-1997), France (1992-1994 and 1995-1997) and the UK (1992-1995 and 1995-1998)**

	1992-1994/5			1995-1997/8		
	W <sub>l</sub>	W <sub>m</sub>	W <sub>h</sub>	W <sub>l</sub>	W <sub>m</sub>	W <sub>h</sub>
<i>The Netherlands</i>						
agriculture	-	-	-	-	-	-
manufacturing	+3.3	+0.7	-2.0	+3.4	+23.2	+6.5
commercial services	+14.2	+0.6	+10.7	+6.8	+6.2	+7.5
non-commercial services	+1.8	+6.6	+1.6	+5.7	+6.3	+5.1
<b>total</b>	<b>+8.6</b>	<b>+3.5</b>	<b>+3.4</b>	<b>+6.1</b>	<b>+8.5</b>	<b>+6.1</b>
<i>Germany</i>						
agriculture	+4.9	+13.3	-	-3.3	-1.5	-2.3
manufacturing	+7.7	+5.9	+6.4	+8.1	+3.5	+1.8
commercial services	+7.0	+8.6	+6.1	+1.9	+2.9	+5.5
non-commercial services	+11.8	+8.6	+7.8	+4.4	+3.1	+4.3
<b>total</b>	<b>+8.1</b>	<b>+7.2</b>	<b>+7.2</b>	<b>+5.5</b>	<b>+3.1</b>	<b>+3.3</b>
<i>France</i>						
agriculture	+6.2	+2.8	+6.9	+2.4	+4.3	+8.9
manufacturing	+12.3	+9.3	+4.9	+3.3	+3.5	+4.3
commercial services	+13.1	+23.8	+16.6	+4.3	+8.3	+4.9
non-commercial services	+5.5	+10.7	+6.5	+4.5	+4.4	+7.5
<b>total</b>	<b>+11.2</b>	<b>+16.5</b>	<b>+10.4</b>	<b>+4.2</b>	<b>+5.8</b>	<b>+6.2</b>
<i>UK</i>						
agriculture	+3.7	-10.3	-3.0	+7.1	+3.8	+10.1
manufacturing	+4.4	+0.7	+3.4	+8.9	+7.0	+3.7
commercial services	+5.9	+5.1	+1.9	+3.8	-5.0	+3.3
non-comm. Services	+6.8	+3.5	+3.5	+4.0	+4.1	+2.6
<b>Total</b>	<b>+5.8</b>	<b>+2.4</b>	<b>+2.6</b>	<b>+4.6</b>	<b>+5.1</b>	<b>+3.8</b>

## 5.2 WAGE MOBILITY: DOES JOB CHANGE MAKE A DIFFERENCE?

In Table 5 we indicate to what extent the change in nominal wages for the various skill groups is related to the mobility of workers within and between economic sectors. One would suspect that wage changes differ between individuals that change jobs and those that don't. Still it is to be noted that the direction and magnitude of these changes are not obvious on beforehand. In a period of increasing nominal wages, the increase is bound to be stronger for individuals that change jobs<sup>3</sup> than for those

3 It may be said that voluntary job changing is part of the process of occupational and wage mobility through which individual workers seek jobs that correspond more closely to their human capital and preferences (cf. Topel and Ward, 1992). This holds in particular for

that don't as far as this mobility is voluntary (since involuntary job changes are often associated with wage decreases). In a period of general wage decrease, the decrease will probably be less for mobile individuals. Thus mobility is generally associated with a relative wage improvement.

We further differentiate between individuals that change jobs within their own economic sector (intrasectoral job change) and those that change jobs between different economic sectors (intersectoral job change). Intrasectoral job changes would lead to higher expected wages by human capital arguments. Since skills are to some extent job- or sector-specific in character, continued employment in the same economic sector is probably associated with the further use of these more "sector-specific" skills. The latter get a higher reward in the "own" economic sector. On the other hand, the gains to be expected from intersectoral job change are associated with wage differences between sectors. The larger these differences, the more it pays off to change jobs between economic sectors. This effect more or less compensates for the relative wage loss that accompanies intersectoral job change (resulting from the fact that less use is being made of the skills that individuals embody).

We have seen from Table 4 that in the Netherlands total average wages have increased during the 1990s for all skill categories, ranging from 3.4% to 8.6%. Table 5 shows that the differences between mobility categories are in some cases quite substantial. Thus being immobile leads to lower nominal wage increases than being mobile for the low- and medium-skilled between 1992 and 1995 and for the high-skilled between 1995 and 1998. Generally, for the low-skilled intersectoral mobility dominates intrasectoral mobility during both sub-periods. This is not always true for the medium- and high-skilled; especially for the former category intrasectoral mobility generally dominates (although only weakly so between 1995 and 1998) intersectoral mobility. In Germany there is much less variation in wage changes by mobility category than in the Netherlands, especially during the first sub-period. Generally intrasectoral job change leads to the largest wage increase between 1992 and 1995 for all three skill categories. During the following two years this is true for intersectoral job change. In both cases this holds in particular for the low- and high-skilled. France shows a very diverse picture, both between the different skill categories and the two sub-periods. Between 1992 and 1994 there have been some quite substantial wage increases. Thus the average wages of medium-skilled workers changing jobs within the own economic sector have increased by 27.8%. The high-skilled have seen wage increases almost as large for those that have changed jobs from one economic sector to another. Between 1995 and 1997 wages increases have been more moderate. For the medium- and high-skilled, wage increases have been largest for those workers changing jobs within their own economic sector. In the UK the wage changes by mobility category do not differ much from total wage changes. This

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workers with limited skills and for workers entering the labour market. For these workers there may be substantial payoffs to moving across jobs until a good match is found.

applies least to the medium-skilled during the first sub-period, where nominal wages of those individuals that changed jobs within the economic sector have decreased by almost 5%. All other mobility and skill categories have witnessed increasing nominal wages. The results suggest that it pays off to change one's job, either within the economic sector or to a different sector, least so for the high-skilled.

**Table 5**

**Percentage change in average low-, medium- and high-skilled nominal wages by mobility category in the Netherlands (1992-1995 and 1995-1998), Germany (1992-1995 and 1995-1997), France (1992-1994 and 1995-1997) and the UK (1992-1995 and 1995-1998)**

	1992-1995			1995-1998		
	W <sub>l</sub>	W <sub>m</sub>	W <sub>h</sub>	W <sub>l</sub>	W <sub>m</sub>	W <sub>h</sub>
<i>The Netherlands</i>						
not mobile	+6.1	+2.6	+4.4	+6.0	+8.9	+5.7
mobile within sectors	+13.6	+9.9	+0.5	+4.7	+6.8	+7.7
mobile between sectors	+21.1	+3.3	+0.2	+9.7	+6.5	+11.6
<b>total</b>	<b>+8.6</b>	<b>+3.5</b>	<b>+3.4</b>	<b>+6.1</b>	<b>+8.5</b>	<b>+6.1</b>
<i>Germany</i>						
not mobile	+8.1	+7.2	+6.2	+5.0	+3.3	+2.5
mobile within sectors	+9.0	+7.6	+9.1	+5.4	+2.3	+3.5
mobile between sectors	+6.0	+6.1	+8.8	+10.4	+4.7	+8.2
<b>total</b>	<b>+8.1</b>	<b>+7.2</b>	<b>+7.2</b>	<b>+5.5</b>	<b>+3.1</b>	<b>+3.3</b>
<i>France</i>						
not mobile	+12.9	+18.2	+6.2	+3.9	+5.7	+5.9
mobile within sectors	+4.7	+27.8	+10.5	+4.5	+9.3	+9.2
mobile between sectors	+5.2	+6.3	+23.8	+5.5	+3.5	+6.7
<b>total</b>	<b>+11.2</b>	<b>+16.5</b>	<b>+10.4</b>	<b>+4.2</b>	<b>+5.8</b>	<b>+6.2</b>
<i>UK</i>						
not mobile	+5.0	+3.6	+3.0	+4.1	+4.4	+3.5
mobile within sector	+7.5	-4.8	+3.2	+5.6	+6.9	+5.9
mobile between sectors	+7.2	+8.0	+0.1	+6.3	+3.9	+3.0
<b>total</b>	<b>+5.8</b>	<b>+2.4</b>	<b>+2.6</b>	<b>+4.6</b>	<b>+5.1</b>	<b>+3.8</b>

*N.B.* Category *total* same as in Table 4

The results from Table 5 can also be cast in terms of “optimal strategies” (in an ex post sense) for either skill category. The best strategy (indicated by “1” in Table 6) would be the one that leads to the highest wage increase. It can be easily seen that the Dutch low-skilled that perform best are those that change jobs between economic sectors. In reference to the remarks made before, this might be explained by the fact that the amount of (sector-specific) human capital these individuals embody is by definition rather low. Thus they lose relatively little by changing to another economic sector. Furthermore, as Table 2 indicates, intersectoral wage inequality is generally higher in the lower half of

the wage distribution than it is in the upper half. Thus it pays off to change to a different economic sector for low-wage earners which are usually low-skilled. For medium- and high-skilled workers it is sometimes best to keep one's job by human capital arguments. For this same reason, intrasectoral mobility is never the worst strategy for these workers. In Germany not changing one's job is never the best strategy, irrespective of what skill category or sub-period is being considered. At the same time, between 1992 and 1995 intrasectoral mobility is associated with the largest wage increase. During the following two years this is true for intersectoral job change. In France for the low-skilled no clear pattern emerges. For the medium-skilled though intrasectoral mobility is always the best strategy, while intersectoral job change is the worst strategy. For the high-skilled, being immobile is the worst strategy during both sub-periods. As in Germany, in the UK not changing one's job is never the best strategy. Even more so, it is the worst strategy for the low-skilled during both sub-periods. Furthermore, there is no real consistency in whether one should be mobile within the sector or between sectors, except for the high-skilled where intrasectoral mobility seems to be the optimal strategy.

*To summarise*, it can be stated that job change does seem to make a difference, with nominal wage increases generally being larger for individuals that show job mobility. Whether intra- or intersectoral job change is associated with the largest wage increase, depends on the skill level and/or the time period considered.

**Table 6**  
**Optimal mobility strategies by skill category, the Netherlands (1992-1995 and 1995-1998), Germany (1992-1995 and 1995-1997), France (1992-1994 and 1995-1997) and the UK (1992-1995 and 1995-1998)**

	low-skilled		medium-skilled		high-skilled	
	1992-4/5	1995-7/8	1992-4/5	1995-7/8	1992-4/5	1995-7/8
<i>The Netherlands</i>						
not mobile	3	2	3	1	1	3
mobile within sectors	2	3	1	2	2	2
mobile between sectors	1	1	2	3	3	1
<i>Germany</i>						
not mobile	2	3	2	2	3	3
mobile within sectors	1	2	1	3	1	2
mobile between sectors	3	1	3	1	2	1
<i>France</i>						
not mobile	1	3	2	2	3	3
mobile within sectors	3	2	1	1	2	1
mobile between sectors	2	1	3	3	1	2



UK

not mobile	3	3	2	2	2	2
mobile within sectors	1	2	3	1	1	1
mobile between sectors	2	1	1	3	3	3

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